**Calculating the Sound Absorption Coefficient of Sound Absorbing Materials Using Flow Resistance**

**ZHU Congyun（朱从云）[[1]](#footnote-1)\*, SHAO Zhenya（邵镇亚）， DING Guofang（丁国芳）**

*School of Mechanical Science & Engineering, Zhongyuan University of Technology, Zhengzhou 450007, China*

**Abstract: Flow resistance is one of the important factors that affect the accuracy of calculating sound absorption coefficient. The flow resistance of porous sound absorbing materials is usually measured by experiment, but due to the interference of sample preparation effect and environmental factors, the actual measurement results often have errors. In order to reduce the calculation error of sound absorption coefficient caused by inaccurate measurement of flow resistance, this study measured the sound absorption coefficient of any two frequencies in the sound absorption material by impedance tube method, and then calculated the flow resistance of the sound absorption material by using MATLAB cycle program according to the empirical formula of wave number and acoustic impedance in the fiber material. Finally, the sound absorption coefficient, the real part of impedance and the imaginary part of impedance of the material at different frequencies are calculated theoretically, and the correctness of the theoretical calculation is verified by experiments. The experimental results show that the calculated values are basically consistent with the measured values, and the feasibility and reliability of this method are also verified. A simple method for calculating the absorption coefficient of sound absorbing materials is presented.**

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   \* Correspondence should be addressed to ZHU Congyun, E-mail: zcy711126@ 163.com [↑](#footnote-ref-1)